

# The Distribution of Shallow-Water Marine Prosobranch Gastropod Molluscs Along the Coastline of Western Australia

BY

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(5 Text figures)

## INTRODUCTION

THE STATE OF WESTERN AUSTRALIA is the largest of the Australian States, occupying fully a third of the Australian continent. The coastline of the State is vast, about 7 000 km long, and has a wide variety of habitats. The coast spans some  $21^{\circ}$  of latitude ( $14^{\circ}$  to  $35^{\circ}$  S) and  $15^{\circ}$  of longitude ( $114^{\circ}$  to  $129^{\circ}$  E). This western portion of Australia was regarded as a wasteland by the early settlers who bypassed it on their way to the east coast. As the process of exploring and settling the eastern states continued, scientific knowledge of the fauna there surged ahead. With no population and little exploration in the west, the study of the fauna of Western Australia lagged behind. The first settlement in Western Australia was founded in Albany in 1827. By that time Sydney was already a thriving town and the Australian Museum was being established.

The early history of the scientific exploration of the Western Australian coastline was summarized by Hedley (1916), who compiled the published descriptions of Western Australian molluscs and found that about 800 species had been recorded in the State to that time. Of these about 550 were marine gastropods. While many of the species have since been synonymized or transferred to



(adjacent column →)

Figure 1

Map of Western Australia showing the locations of points mentioned in the text

other genera, Hedley's compilation is still the most extensive listing of Western Australian molluscs. HEDLEY (1926) later published an analysis of the zoogeography of Australian marine molluscs, but the species ranges in Western Australia were poorly known at that time. Many collections have been made in the intervening 74 years and the details of the distributional patterns of marine gastropods along the Western Australian coastlines can now be elucidated.

## MATERIALS AND METHODS

The distributions in Western Australia of 440 species of prosobranch gastropods were established by analyzing the collections of the Western Australian Museum (WAM). CATE (1964; 1968) and WILSON & GILLET (1971) also used the WAM collections but had access to private collections which extended the known ranges of some species

beyond that recorded in the Museum holdings; the extended ranges have been used in this analysis. The 20 families selected for analysis are those that are best represented in the collection and are well known taxonomically. Table I lists the 20 families and the number of species examined in each; Appendix I lists the species examined and their ranges. The analysis provides a good coverage of the three prosobranch orders: 72 archeogastropods, 119 mesogastropods, and 249 neogastropods are discussed. This encompasses most of the prosobranchs whose range can be established with the WAM collections and the results can be considered to be representative.

The WAM collections are the result of an intensive field collecting programme conducted throughout the State during the last 14 years. Only material from the intertidal or the shallow depths that can be reached by SCUBA techniques, is analyzed in this paper. The overall outlines of the distributions of shallow-water prosobranchs can be established, but not every species has been collected at all of the major localities. In the case of widespread tropical Indo-Pacific or warm temperate southern Australian species the lack of a specimen from a particular locality in the middle of its range is considered to be an artifact and the ranges discussed assume the species will be recorded later at intermediate localities. This generalization of species ranges might obscure areas along the coast where groups of species are absent.

Table 1

Prosobranch families investigated in this paper.

Family	Number of species investigated
Archeogastropoda	
Haliotidae	10
Trochidae	37
Turbinidae	17
Neritidae	8
Mesogastropoda	
Littorinidae	9
Strombidae	15
Cypraeidae	61
Naticidae	14
Cassidae	14
Tonnidae	6
Neogastropoda	
Muricidae	26
Thaididae	22
Columbellidae	22
Fasciolaridae	13
Nassariidae	19
Olividae	9
Mitridae	51
Volutidae	23
Conidae	48
Terebridae	16
	440

## RESULTS

### Overall Patterns of Distribution

Three general distributional patterns emerge from the overall analysis of species distributions: the majority (308) of the species are widely distributed tropical species found in the Indo-Pacific region and along the tropical coasts of northern Australia, extending into Western Australia; a smaller group of 94 species are warm temperate forms distributed along the southern coast of Australia, including the south coast of W.A.; the smallest segment of the fauna is a group of 38 species that are endemic to Western Australia.

There are no major distributional features exhibited by the tropical species along the north coast (Figure 2). Of the 308 tropical species, 230 extend as far west as the North-West Cape-Barrow Island area. The 78 species that do not reach the North-West Cape area drop out gradually along the north coast. The North-West Cape area is the major geographical limit for the tropical fauna with

90 species having their range limits in the area. Two smaller areas of substantial range limits occur along the west coast at Shark Bay, where 43 species terminate, and the Houtman Abrolhos (47). Only 47 of the 308 tropical species extend south of the Houtman Abrolhos. These decrease gradually along the west coast until only 9 have been recorded at Cape Leeuwin at the southwestern corner of the State. Four tropical species (*Clanculus consorbinus*, *Cypraea caputserpentis*, *C. helvola*, and *Natica qualtieriana*) are found along the south coast to Albany. One species, *Natica sagittata*, is recorded as far as Esperance.

A similar, but reverse pattern, is exhibited by the warm temperate species (Figure 2). Eighty-eight of the 94 species are distributed along the entire south coast to Cape Leeuwin. Seventeen of these extend only to the Cape Leeuwin-Cape Naturaliste area. The major distribution limit for the warm temperate group is in the Perth area, which is the extreme range for 31 species. Forty of the southern species occur north of the Perth area, but 24 of these do not extend north of the Houtman Abrolhos-Geraldton area. The remaining 16 exhibit a gradual decline further north on the west coast, and only three extend to the north coast: *Nassarius particeps*, which extends to the Dampier Archipelago, and *Eunaticina dinglei* and *Oliva australis*, both of which are found as far as Broome.

The distributions of the 38 species endemic to Western Australia are shown on Figure 2, and the species are listed on Table 2. Most occur only along the west coast though some extend to the north or south coast. The percentages of endemic species are about the same in the 3 prosobranch orders: 7.0% in the Archeogastropoda, 8.4% in the Mesogastropoda, and 9.2% among the Neogastropoda. None of the orders has a rate of endemism substantially different from the average rate of 8.6% endemic.

The presence of two overlapping faunas on the west coast provides an interesting area for the examination of the changes which occur in species populations near the extreme limit of their ranges. Figure 3 shows the relative percentages of northern and southern species along the west coast. There is a clear decline in the percentage of tropical species southward along the coast. The molluscan fauna of both North-West Cape and Shark Bay is almost completely tropical. The Abrolhos is 72% tropical. South of the Abrolhos the percentage of tropical species declines sharply, decreasing to 39% in the Perth area. The fauna of the southwest corner of the State is predominately warm temperate. The major overlap between the tropical and warm temperate faunas occurs on the stretch of coastline between Perth and the Houtman Abrolhos.

Table 2

Species investigated that are endemic to Western Australia.

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Archeogastropoda
Haliotidae
<i>Haliotis elegans</i>
<i>H. semiplicata</i>
Trochidae
<i>Calliostoma ciliaris</i>
<i>C. lepidus</i>
<i>Clanculus occidus</i>
Mesogastropoda
Littorinidae
<i>Nodilittorina australis</i>
<i>N. nodosa</i>
<i>Tectarius rusticus</i>
Cypraeidae
<i>Cypraea armeniaca</i>
<i>C. brevidentata</i>
<i>C. decipiens</i>
<i>C. pulicaria</i>
<i>C. rosselli</i>
<i>C. venusta</i>
Cassidae
<i>Phalium whitworthi</i>
Neogastropoda
Muricidae
<i>Haustellum wilsoni</i>
<i>Pterynotus westralis</i>
<i>Dermomurex antonius</i>
Thaididae
<i>Cronia avellana</i>
Columbellidae
<i>Zafra mitriformis</i>
Fascioliidae
<i>Latirus walkeri</i>
Mitridae
<i>Mitra backae</i>
<i>M. chalybeia</i>
<i>M. gilbertsoni</i>
<i>M. hansenae</i>
<i>M. marrowi</i>
Volutidae
<i>Amoria ellioti</i>
<i>A. grayi</i>
<i>A. irvinae</i>
<i>A. macandrewi</i>
<i>A. nivosa</i>
<i>Volutaconus coniformis</i>
<i>V. hargreavesi</i>
Conidae
<i>Conus clarus</i>
<i>C. dorreensis</i>
<i>C. kenyonae</i>
<i>C. nodulosus</i>
Terebridae
<i>Duplicaria crakei</i>

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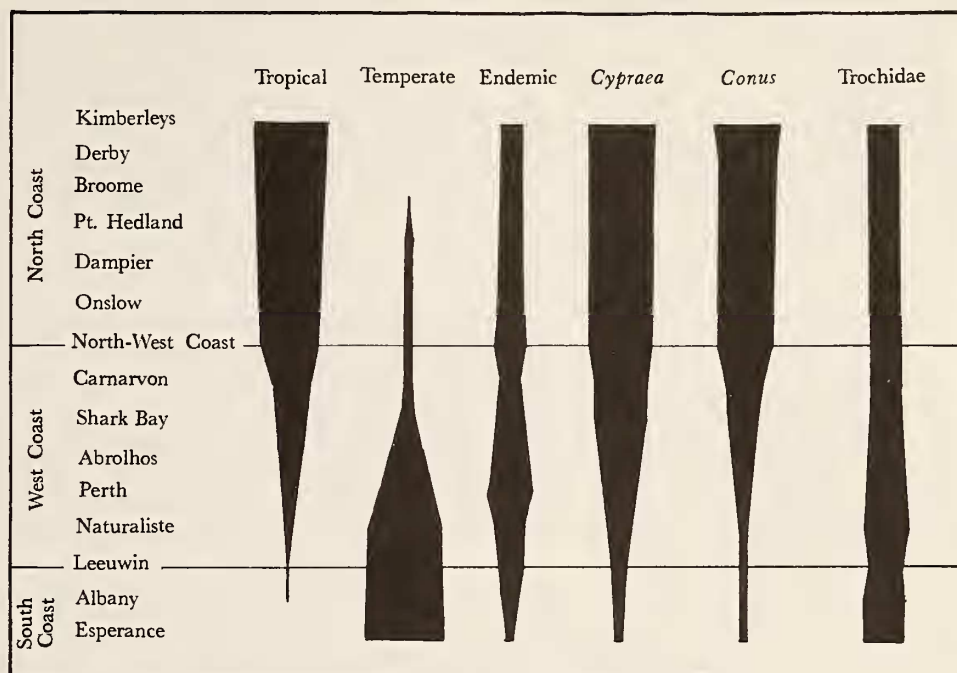


Figure 2

Distribution of marine prosobranch gastropods in Western Australia

There is a tendency for the Houtman Abrolhos and Rottnest Island to have a more tropical fauna than the adjacent inshore areas; this is particularly true of the Abrolhos. At Geraldton, 60 km east of the Abrolhos, the coastal fauna is much more temperate in nature, though the percentages of tropical species used here do not indicate this. The difference between the molluscan faunas of the Abrolhos and Geraldton could be better shown by a detailed analysis which included relative abundances instead of just presence and absence. The ocean waters at Geraldton reach a minimum of 18°C during the winter (HODGKIN & PHILLIPS, 1969), while the minimum at the Abrolhos is 19°C (MARSH, 1976). The difference, though small, is crucial since a minimum of 20°C is generally accepted as the limit of a tropical fauna (BRIGGS, 1975).

#### Distribution of the Family Cypraeidae

The genus *Cypraea* has been extensively studied in Western Australia. CATE (1964; 1968) and WILSON & GILLET (1971) provide data on the distributions of almost all of the cowries occurring in the State. In addition, WILSON & SUMMERS (1966) and WILSON & McCOMB (1967) discuss the systematics and distributions of the members of the subgenus *Zoila* in detail.

The genus *Cypraea* is characteristic of shallow tropical marine environments. The distribution of the 61 species recorded in Western Australia is shown on Figure 2, which clearly demonstrates the tropical nature of the group. Fifty of the species are tropical, 5 are temperate and 6 are endemic. The tropical *Cypraea* follow the generalized dis-

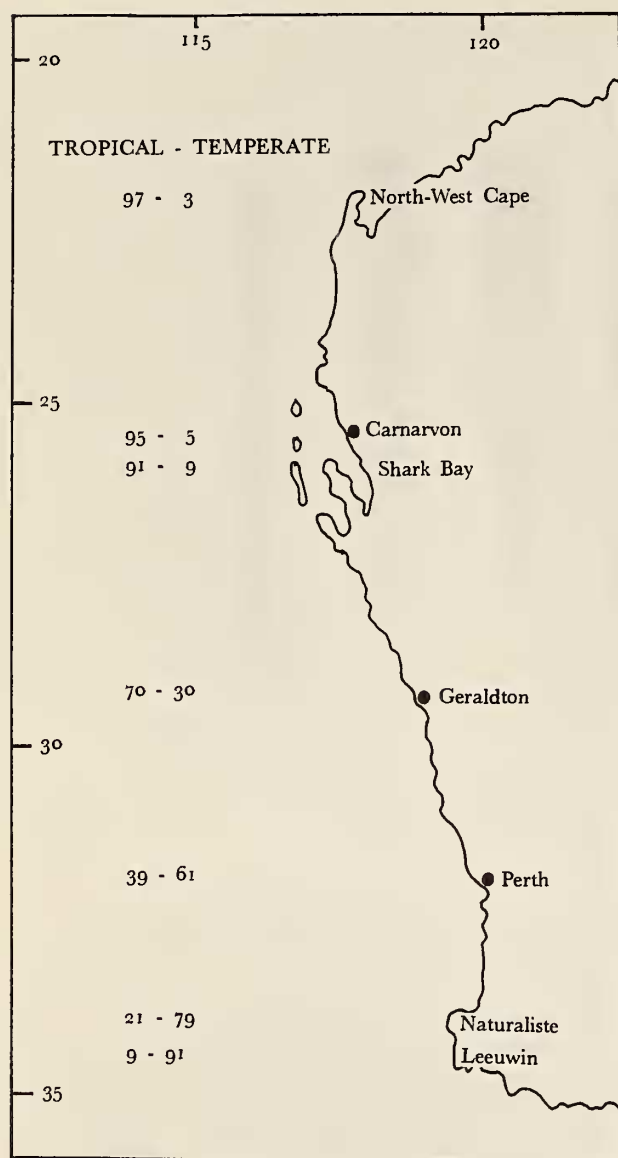


Figure 3

Percentages of tropical (left) and temperate (right) marine prosobranch species along the west coast of Western Australia. These figures exclude endemic species

tribution pattern discussed above. Nine species have been collected only along the north coast east of North-West Cape and an additional 10 have been reported at but not south of North-West Cape. The number of tropical *Cypraea* declines sharply along the west coast, and only 12

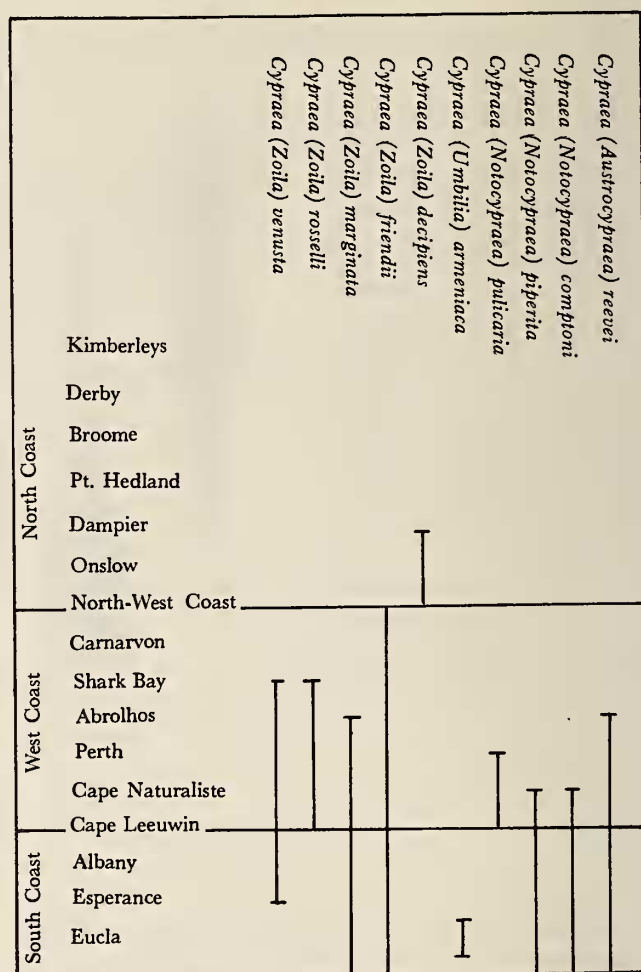


Figure 4

Distribution of cowries of the subgenera *Austrocypraea*, *Notocypraea*, *Umbilia*, and *Zoila* in Western Australia

have been reported south of the Houtman Abrolhos. South of the Abrolhos there is a gradual decline in the number of tropical species. The extreme ranges are exhibited by *C. helvola* and *C. caputserpentis*, which range along the south coast to Albany.

Four subgenera of *Cypraea*, with a total of 14 species, are restricted to Australia: *Austrocypraea*, *Notocypraea*, *Umbilia*, and *Zoila*. Nine species of these subgenera occur in Western Australia, and 5 are endemic to the State (Figure 4). Eight of the 9 species are found predominately in the coldwater areas of the lower west coast and the south

coast. Only one species, *Cypraea* (*Zoila*) *deci piens*, is found on the north coast, where it is distributed between North-West Cape and the Buccaneer Archipelago.

Aside from the members of the Australian subgenera only a single species of *Cypraea*, *C. brevidentata*, is endemic to Western Australia. This species is restricted to the north coast between North-West Cape and Broome.

### Distribution of the Family Conidae

Another tropical genus, *Conus*, has 49 representatives in Western Australia. Five of these are endemic and 5 are temperate species (Figure 2). The North-West Cape area is again the major distributional limit of the tropical species, with 15 species not being recorded farther to the south. Shark Bay and the Houtman Abrolhos are the other major limits for cones, and only one tropical species, *C. lividus*, reaches as far south as Rottnest Island.

### Distribution of the Family Trochidae

In contrast to the 2 families just discussed the trochids have a fairly even split of tropical (14 species) and temperate (20) forms. Three species: *Calliostoma ciliaris*, *C. lepidus* and *Clanculus occidus* are limited to Western Australia. The number of species of tropical trochids declines progressively southward along the coast (Figure 2) with no major distributional limits. The southern species show a similar pattern, with a gradual decrease in the number of species proceeding northward.

### Distribution of the Family Volutidae

The highest rate of endemism occurs in the neogastropod family Volutidae, where 7 of the 23 species, or 30%, are endemic. In addition, *Amoria dampieria* is distributed primarily in Western Australia but extends into the Northern Territory. Volutes reproduce by depositing benthic egg capsules from which the young emerge as crawling juveniles (WILSON & GILLET, 1971). The lack of a pelagic distributional stage contributes substantially to the high rate of endemism in the group.

The distributions of the endemic volutes are shown on Figure 5. The figure shows that not only are these species endemic to Western Australia, but two have restricted distributions within the State. *Amoria macandrewi* is found only off Barrow Island and Monte Bello Island, a distance of only 50 km. *Amoria ellioti* has a range of 200 km from Dampier to Port Hedland. Both species are found in shal-

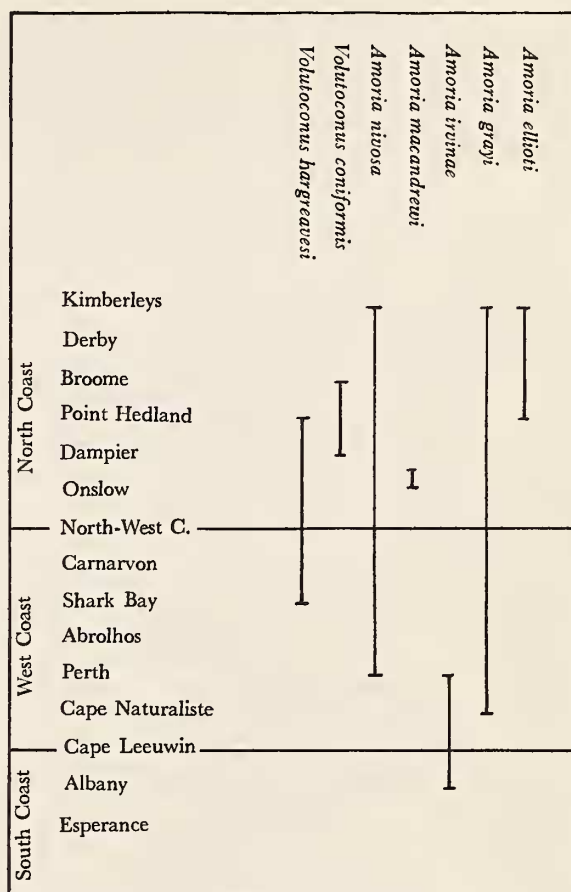


Figure 5

Distribution of volute species endemic to Western Australia

low waters and their known ranges are not likely to be extended substantially by continued collecting.

In contrast to the species with restricted ranges are several endemics found over large portions of the Western Australian coastline. *Amoria grayi* extends along the entire north coast westward from the Kimberleys and southward on the west coast to Cape Naturaliste. *Amoria irvinae* has a southern distribution from Albany on the south coast to Jurien Bay on the west coast. Three other species (*Amoria nivosa*, *Volutoconus coniformis* and *V. hargreavesi*) have distributions over reasonably wide areas of the coastline. Thus there is substantial variation in the ranges occupied by the volutes endemic to Western Australia. It would be interesting to elucidate the mechanisms which account for these variations.

## DISCUSSION

The detailed analysis of prosobranch distributions along the coast of Western Australia presented here elaborates the general outlines presented by HEDLEY (1926), WILSON & GILLET (1971), and WILSON & STEVENSON (1977). There are two distinct faunas in the State: a northern tropical fauna which extends into eastern Australia and the Indo-Pacific region and a warm temperate fauna which is continuous with the remainder of the coastline of southern Australia. Most of the tropical species reach the North-West Cape area and almost all of the temperate forms are distributed along the south coast to Cape Leeuwin. The two faunas overlap on the west coast between Cape Leeuwin and North-West Cape, with the major overlap area located between Perth and the Houtman Abrolhos.

The division of the Western Australian coastline into faunal regions has received attention from a number of workers investigating different phyla. The tropical coast of Australia was divided into a Solanderian fauna east of Cape York and a Damperian fauna extending from the west of Cape York to the Houtman Abrolhos and Geraldton (HEDLEY, 1926). This pattern was followed for echinoderms by CLARK (1946) and MARSH (1976) but ENDEAN (1957) suggested merging the Damperian and Solanderian faunas into a single tropical Australian province. MARSH (*op. cit.*) rejected this proposal because 20% of the shallow-water asteroids of north Western Australia are endemic to the waters west of Torres Strait. Eighty-eight percent of the prosobranch gastropods investigated here which occur on the north coast of Western Australia also occur in eastern Queensland or the Indo-Pacific region. This suggests that in the case of prosobranchs there is no need to subdivide the tropical waters of Australia into two faunal regions, and to do so would obscure the extensive similarities between the two areas. A similar conclusion was reached by WILSON & STEVENSON (1977) in their discussion of the distributions of cardiid bivalves.

HEDLEY (1926) described an Adelaidean region, which has since been renamed the Flindersian region; extending along the south coast of Australia westward from Bass Strait, and including all of the south coast of Western Australia and the west coast to Geraldton. The Flindersian region was subsequently restricted to the south coast east of Albany by KOTT (1952) and a Baudinian region established between Perth and Albany. The proposal of a separate Baudinian region was based on four species of ascidians endemic to the area. Figure 2 shows that while a number of endemic prosobranchs occur between Albany and Perth, most extend further to the north or are found

entirely outside Kott's Baudinian region. The analysis of prosobranch distributions indicates that there is no necessity for the separation of the lower west coast into a distinct faunal area.

As has been indicated, the major overlap zone between the tropical and temperate prosobranchs occurs in the region of Perth to the Houtman Abrolhos and Geraldton. Since the marine fauna at Geraldton has a distinctly more temperate character than the offshore Abrolhos the placement of the northern limit of the Flindersian region at Geraldton by HEDLEY (1926) is substantiated.

Similarly ENDEAN (1957) divided the fauna of the Queensland coast into two groups: an inshore component influenced by freshwater runoff from adjacent land masses and an offshore reef area. A similar inshore and offshore division could be made on the Western Australian coast, but there would be a substantial overlap between the two groups.

The overall rate of endemism, 8.6%, is low. Among the species presently regarded as endemic are 9 described since 1965. The ranges of these species are poorly known and some of them may well be eventually found outside of Western Australia. Undoubtedly other new forms may be described as the molluscan fauna of Western Australia receives more attention. Some of the endemic species whose distributions are well established are clearly valid species. Included in this category are species such as *Conus dorreensis* which cannot be confused with any other species. Many of the shallow-water forms occurring along the Western Australian tropical coastline are closely related to, or conspecific with, populations in the Indo-Pacific region or eastern Australia. The populations in Western Australia have diverged from the main body of the species because of reproductive isolation, but whether they have diverged sufficiently to achieve species status is a matter of taxonomic judgement. One example of this is *Conus nodulosus* which is regarded as a species in this paper and by WILSON & GILLET (1971). However, Wilson and Gillett state that the status of the species is uncertain. It has a close affinity to *C. victoriae* and may prove on detailed investigation to be a subspecies of *C. victoriae*. The different judgements on such questions that could be made by taxonomists affect the rate of endemism presented here. The rate of 8.6% endemics is not an unchallenged figure, but it does indicate the presence in Western Australia of a low proportion of prosobranch species unique to the area.

Two factors appear to be important in limiting species in Western Australia: temperature and the availability of suitable habitats. The limiting role of temperature is well known (see BRIGGS, 1975). Temperate species en-

counter progressively warmer waters further north on the west coast until the upper tolerance limit is met; tropical species encounter colder waters to the south. The temperature tolerance range of each species is modified by a suite of physical and biological environmental factors, but at some point the limit is encountered and the species can go no further.

The Perth area is the northern limit for one-third of the temperate species. Most of these prosobranchs live on rocky substrates that are largely lacking in the area between Perth and Geraldton. It seems likely that some of these species would be able to colonize the shorelines further north if suitable substrates were available. Many of the tropical species live on coral reefs, and the absence of some of the reef habitats south of North-West Cape may limit tropical prosobranch species. This evades the question of why coral development is restricted south of North-West Cape, and the factor(s) limiting coral development may also be acting on the molluscs.

The pattern of oceanic surface currents along the faunal overlap zone of the west coast obviously has an important bearing on the distributions of marine prosobranch species, most of which have planktonic larval stages. The current structure is poorly known. A Western Australian Current flows northward offshore of the Continental Shelf during the summer months of November to March (WYRTKI, 1973). A southerly flowing countercurrent has recently been found over the shelf (STEEDMAN *et al.*, 1977). This brings warm surface waters southward along the west coast, with the 26° C isotherm reaching as far south as 31° S, just north of Perth. During the winter months the countercurrent dissipates and a series of semi-permanent vortices is established on the west coast. Surface temperatures over the Continental Shelf are 2° to 7° C higher than in the waters west of the Continental Shelf (STEEDMAN *et al.*, 1977). The relatively warm surface waters moved southward by the currents allow tropical prosobranch species to extend further to the south than would otherwise be the case.

## ACKNOWLEDGMENTS

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helpful suggestions. Mrs. G. Hansen examined the species distributions. Mrs. M. Wallis typed this and a number of my other manuscripts.

## APPENDIX

### HALIOTIDAE

- Haliotis asinina* Linnaeus, 1758. North coast eastwards from North-West Cape.
- H. conicopora* Péron, 1816. South coast and northwards along the west coast to Fremantle.
- H. cyclobates* Péron, 1816. South coast westwards to Albany.
- H. elegans* Philippi, 1899. South coast westwards from Albany and northwards along the west coast to the Houtman Abrolhos.
- H. ovina* Gmelin, 1791. North coast eastwards from Barrow Island.
- H. roei* Gray, 1826. South coast and northwards along the west coast to Shark Bay.
- H. scalaris* (Leach, 1814). South coast and northwards along the west coast to Jurien Bay.
- H. semiplicata* Menke, 1843. South coast westwards from Esperance and northwards along the west coast to Perth.
- H. squamata* Reeve, 1846. North coast and southwards along the west coast to Shark Bay.
- H. varia* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.

### TROCHIDAE

- Angaria tyria* (Reeve, 1843). North coast and southward along the west coast to Cockburn Sound.
- Austrocochlea constricta* (Lamarck, 1822). South coast and northward along the west coast to the Houtman Abrolhos.
- A. rudis* (Gray, 1826). South coast and northward along the west coast to the Murchison River.
- Calliostoma australe* (Broderip, 1835). South coast and northward along the west coast to Fremantle.
- C. ciliaris* (Menke, 1843). South coast westward from Esperance and northwards along the west coast to Perth.
- C. interruptum* (Wood, 1828). South coast and northward along the west coast to Rottnest.
- C. lepidus* (Philippi, 1846). West coast from Jurien Bay to the Houtman Abrolhos.
- C. monile* (Reeve, 1843). North coast eastwards from Monte Bello Island.
- C. spinulosum* Tate, 1893. North coast and southward along the west coast to Rottnest Island.
- Cantharidella beachportensis* (Cotton and Godfrey, 1934). South coast and northward along the west coast to Cape Naturaliste.
- C. ocellina* (Hedley, 1911). South coast and northward along the west coast to Rottnest Island.
- Clanculus atropurpureus* (Gould, 1846). North coast and southward along west coast to Kalbarri.

- C. consorbrinus* Tate, 1893. North coast, west coast, and eastward on south coast to Albany.
- C. denticulatus* (Gray, 1827). South coast and northward along the west coast to the Houtman Abrolhos.
- C. dunkeri* (Koch, 1843). South coast as far west as Albany.
- C. limbatus* (Quoy and Gaimard, 1834). South coast and northward along the west coast to Bunbury.
- C. maxillatus* (Menke, 1843). South coast and northward along the west coast to Kalbarri.
- C. occiduus* Cotten & Godfrey, 1934. South coast from Hopetoun west and northward along the west coast to Rottnest Island.
- C. personatus* (Philippi, 1846). South coast and northward along the west coast to Rottnest Island.
- C. plebejus* (Philippi, 1851). South coast and northward along the west coast to Geraldton.
- C. ringens* (Menke, 1843). South coast and northward along the west coast to Perth.
- Gibbula maccullochi* Hedley, 1907. North coast and southward along the west coast to Perth.
- G. preissiana* (Philippi, 1848). South coast and northward along the west coast to Perth.
- Monilea callifera* (Lamarck, 1827). North coast and southward along the west coast to Cockburn Sound.
- Monodonta labio* (Linnaeus, 1758). North coast and southward along the west coast to Shark Bay.
- Odontotrochus* cf. *O. baudini* (Fischer, 1878). North coast and southward along the west coast to Fremantle.
- O. chlorostoma* (Menke, 1843). South coast and northward along the west coast to North-West Cape.
- Phasianotrochus eximus* (Perry, 1811). South coast and northward along the west coast to Fremantle.
- Prothalotia lehmanni* (Menke, 1843). South coast and northward along the west coast to Kalbarri.
- P. pulcherrima* (Wood, 1828). South coast and northward along the west coast to the Houtman Abrolhos.
- P. ramburi* (Crosse, 1864). South coast and northward along the west coast to Cape Naturaliste.
- Tectus pyramis* Born, 1778. North coast and southward along the west coast to Rottnest Island.
- Thalotia conica* (Gray, 1827). South coast and northward along the west coast to Rottnest Island.
- Trochus fenestratus* Tate, 1893. North coast and southward along the west coast to Shark Bay.
- T. hanleyanus* Reeve, 1842. North coast and southward along the west coast to the Houtman Abrolhos.
- T. lineatus* Lamarck, 1822. North coast eastward from North-West Cape.
- T. maculatus* Linnaeus, 1758. North coast and southward along the west coast to the Houtman Abrolhos.

#### TURBINIDAE

- Astraea pileola* Reeve, 1842. North coast and southward along the west coast to Carnarvon.
- A. rotularia* (Lamarck, 1822). North coast eastward from Port Hedland.
- A. squamifera* (Koch, 1844). South coast and northward along the west coast to Jurien Bay.

- A. stellare* (Gmelin, 1791). North coast eastward from North-West Cape.
- A. tentorium* (Thiele, 1931). Endemic from Cockburn Sound to the Houtman Abrolhos.
- Lunella cinereus* Born, 1798. North coast eastward from North-West Cape.
- Marmarostoma pulcher* (Reeve, 1842). South coast and northward along the west coast to Shark Bay.
- Ninella haynesi* Preston, 1914. North coast and southward along the west coast to Rottnest Island.
- N. torquata* Gmelin, 1791. South coast and northward along the west coast to Geraldton.
- Phasianella australis* (Gmelin, 1791). South coast and northward along the west coast to Geraldton.
- P. ventricosa* (Swainson, 1822). South coast and northward along the west coast to Geraldton.
- Subninella undulata* (Gmelin, 1791). South coast and northward along the west coast to Geraldton.
- Turbo* cf. *T. argyrostomus* Linnaeus, 1758. North coast and southward along the west coast to Carnarvon.
- T. chrysostoma* Linnaeus, 1758. North coast and southward along the west coast to Carnarvon.
- T. foliaceus* Philippi, 1846. North coast eastward from North-West Cape.
- T. jourdani* Kiener, 1839. South coast and northward along the west coast to the Houtman Abrolhos.
- T. petholatus* Linnaeus, 1758. North coast and southward along the west coast to Shark Bay.

#### NERITIDAE

- Nerita albicilla* Linnaeus, 1758. North coast and southward along the west coast to the Abrolhos.
- N. atramentosa* Reeve, 1855. South coast and northwards along the west coast to North-West Cape.
- N. chamaeleon* Linnaeus, 1758. North coast eastwards from North-West Cape.
- N. lineata* Gmelin, 1791. North coast and southward along the west coast to Shark Bay.
- N. plicata* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.
- N. reticulata* Karsten, 1789. Kimberley region of the north coast.
- N. undata* Linnaeus, 1758. North coast and southwards along the west coast to Shark Bay.

#### LITTORINIDAE

- Bembicium auratum* (Quoy and Gaimard, 1834). South coast and northward along the west coast to the Houtman Abrolhos.
- B. melanostoma* (Gmelin, 1791). South coast and northward along the west coast to Perth.
- Littorina scabra* (Linnaeus, 1758). North coast and southward along the west coast to Shark Bay.
- L. undulata* Gray, 1939. North coast eastward from North-West Cape.
- L. unifasciata* Gray, 1826. South coast and northward along the west coast to North-West Cape.

- Nodilittorina australis* (Gray, 1826). Endemic from Esperance to North-West Cape.  
*N. nodosa* (Gray, 1839). Endemic from Geraldton to the north coast.  
*N. pyramidalis* (Quoy and Gaimard, 1833). North coast and southward along the west coast to Fremantle.  
*Tectarius rusticus* (Philippi, 1846). Endemic to the Kimberley region.

## STROMBIDAE

- Lambis chiragra* (Linnaeus, 1758). North coast eastwards from North-West Cape.  
*L. lambis* (Linnaeus, 1758). North coast eastwards from North-West Cape.  
*Strombus campbelli* Griffith and Pidgeon, 1834. North coast and southwards along the west coast to Fremantle.  
*S. dilatatus* Swainson, 1821. North coast eastwards from North-West Cape.  
*S. epidromus* Linnaeus, 1758. North coast eastwards from North-West Cape.  
*S. gibberulus* Linnaeus, 1758. North coast eastwards from North-West Cape.  
*S. lentiginosus* Linnaeus, 1758. North coast eastwards from the Dampier Archipelago.  
*S. marginatus* Duclos, 1844. North coast eastwards from North-West Cape.  
*S. mutabilis* Swainson, 1821. North coast and southwards along the west coast to Cape Leeuwin.  
*S. plicatus* (Röding, 1798). North coast eastwards from Onslow.  
*S. urceus* Linnaeus, 1758. North coast eastwards from North-West Cape.  
*S. vomer* (Röding, 1798). North coast and southwards along the west coast to Shark Bay.  
*S. wilsoni* Abbott, 1967. North coast east from North-West Cape.  
*Rimella cancellata* Lamarck, 1816. North coast eastwards from the North-West Cape.  
*Terebellum terebellum* (Linnaeus, 1758). North coast eastwards from North-West Cape.

## CYPRAEIDAE

- Cypraea annulus* Linnaeus, 1758. North coast southwards along the west coast to Rottnest Island.  
*C. arabica* Linnaeus, 1758. North coast southwards along the west coast to Shark Bay.  
*C. argus* Linnaeus, 1758. Along the north coast eastwards from North-West Cape.  
*C. armeniaca* Verco, 1912. South coast as far westwards as Eucla.  
*C. asellus* Linnaeus, 1758. Along the north coast eastwards from North-West Cape.  
*C. brevidentata* Sowerby, 1870. North coast endemic between North-West Cape and Broome.  
*C. caputserpentis* Linnaeus, 1758. North coast, southwards on the west coast, continuing on to Albany on the south coast.  
*C. carneola* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. caurica* Linnaeus, 1758. North coast southwards along the west coast to Shark Bay.

- C. cernica* Sowerby, 1870. North coast and southwards along the west coast to Bunbury.  
*C. chinensis* Lamarck, 1822. Along the north coast eastwards from North-West Cape, and southwards on the west coast to Cape Naturaliste.  
*C. cicercula* Linnaeus, 1758. North coast eastwards from North-West Cape.  
*C. clandestina* Linnaeus, 1767. North coast and southwards along the west coast to Cape Naturaliste.  
*C. comptoni* Gray, 1847. South coast to Cape Naturaliste.  
*C. cribraria* Linnaeus, 1758. North coast southwards on the west coast to Cape Naturaliste.  
*C. cylindrica* Born, 1778. North coast southwards on the west coast to Shark Bay.  
*C. decipiens* Smith, 1880. Along the north coast from North-West Cape to the Buccaneer Archipelago.  
*C. eglantina* Duclos, 1833. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. erosa* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. erroneus* Linnaeus, 1758. North coast and southwards along the west coast to Cape Naturaliste.  
*C. fimbriata* Gmelin, 1791. North coast southwards along the west coast to Cape Naturaliste.  
*C. friendii* Gray, 1831. South coast and northwards along the west coast to North-West Cape.  
*C. gracilis* Broderip and Sowerby, 1829. North coast southwards along the west coast to Cape Naturaliste.  
*C. hammondae* (Iredale, 1939). North coast southwards along the west coast to the Houtman Abrolhos.  
*C. helvola* Linnaeus, 1758. North coast southwards along the west coast and along the south coast to Albany.  
*C. hirundo* Linnaeus, 1758. North coast and southwards along the west coast to Shark Bay.  
*C. histrio* Gmelin, 1791. Along the north coast eastwards from North-West Cape.  
*C. isabella* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. kieneri* Hidalgo, 1906. North coast eastwards from North-West Cape.  
*C. labrolineata* Gaskoin, 1848. North coast eastwards from North-west Cape.  
*C. limacina* Lamarck, 1810. North coast and southwards along the west coast to Cape Naturaliste.  
*C. lutea* Gmelin, 1791. North coast eastwards from North-West Cape.  
*C. lynx* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. marginata* Lamarck, 1811. South coast and northwards along the west coast to Geraldton.  
*C. mauritania* Linnaeus, 1758. North coast in the Kimberley area.  
*C. miliaris* Gmelin, 1791. North coast and southwards along the west coast to Shark Bay.  
*C. moneta* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.  
*C. nucleus* Lamarck, 1811. Along the north coast eastwards from North-West Cape.  
*C. ovum* Gmelin, 1791. North coast and southwards along the west coast to the Houtman Abrolhos.

- C. pallidula* Gaskoin, 1849. North coast and southwards along the west coast to Cape Naturaliste.
- C. piperita* Gray, 1825. South coast and northwards along the west coast to Cape Naturaliste.
- C. poraria* Linnaeus, 1758. Along the north coast and southward on the west coast to Cape Naturaliste.
- C. pyriformis* Gray, 1824. Along the Kimberley region of the north coast.
- C. pulicaria* Reeve, 1846. West coast from Cape Leeuwin to Rott-nest Island.
- C. punctata* Linnaeus, 1771. North coast eastwards from North-West Cape.
- C. quadrimaculata* Gray, 1824. Along the north coast in the Kimberley region.
- C. reevei* Sowerby, 1832. South coast northwards along the west coast to the Houtman Abrolhos.
- C. rosselli* (Cotton, 1948). West coast from Cape Leeuwin to Shark Bay.
- C. saulae* Gaskoin, 1843. Along the north coast eastwards from the Dampier Archipelago.
- C. staphylaea* Linnaeus, 1758. North coast and southwards along the west coast to Rottnest Island.
- C. stolidia* Linnaeus, 1758. North coast and southwards along the west coast to the Houtman Abrolhos.
- C. subviridis* Reeve, 1835. North coast and southwards along the west coast to Rottnest Island.
- C. talpa* Linnaeus, 1758. Along the north coast eastwards from North-West Cape.
- C. teres* Gmelin, 1791. North coast and southwards along the west coast to Cape Naturaliste.
- C. testudinaria* Linnaeus, 1758. Along the Kimberley region of the north coast.
- C. tigris* Linnaeus, 1758. North coast and southwards along the west coast to Cape Naturaliste.
- C. ursellus* Gmelin, 1791. Along the north coast eastwards from Broome.
- C. venusta* Sowerby, 1847. South coast northwards along the west coast to Shark Bay.
- C. vitellus* Linnaeus, 1758. North coast and southwards along the west coast to Cape Naturaliste.
- C. walkeri* Sowerby, 1832. Along the north coast eastwards from Broome.
- C. ziczac* Linnaeus, 1758. North coast and southwards along the west coast to Shark Bay.

#### NATICIDAE

- Ectosinum zonale* (Quoy and Gaimard, 1833). South coast and northward along the west coast to Rottnest Island.
- Eunaticina dingeldi* (Iredale, 1931). South coast, west along the coast, and eastward along the north coast to Broome.
- Mammilla opaca* (Récluz, 1851). North coast and southward along the west coast to Shark Bay.
- M. simiae* (Deshayes, 1838). North coast eastward from the Dampier Archipelago.
- Mamillaria powisiana* (Récluz, 1844). North coast and southward along the west coast to Geraldton.

- Natica fasciata* (Röding, 1798). North coast eastward from the Dampier Archipelago.
- N. gualtieriana* Récluz, 1844. North coast, west coast, and eastward along the south coast to Albany.
- N. sagittata* Menke, 1843. North coast, west coast, and eastward along the south coast to Esperance.
- N. seychellium* Watson, 1886. North coast and southward along the west coast to Cape Naturaliste.
- Sigaretotrema umbilicatum* (Quay and Gaimard, 1833). South coast and northward along the west coast to Perth.

#### CASSIDAE

- Casmaria erinacea* (Linnaeus, 1758). North coast eastward from North-West Cape.
- C. ponderosa* (Gmelin, 1791). North coast eastward from Barrow Island.
- Cassis cornuta* (Linnaeus, 1758). North coast eastward from Onslow.
- C. fimbriata* Quoy and Gaimard, 1833. South coast and northward along the west coast to the Houtman Abrolhos.
- Phalium adcocki* (Sowerby, 1896). South coast as far westward as Eucla.
- P. areola* (Linnaeus, 1758). North coast and southward along the west coast to Carnarvon.
- P. bandatum* (Perry, 1811). North coast and southward along the west coast to the Houtman Abrolhos.
- P. bisulcatum* (Schubert and Wagner, 1829). North coast and southward along the west coast to Carnarvon.
- P. glabratum* (Iredale, 1927). Kimberley region of the north coast.
- P. pauciruge* (Menke, 1843). South coast as far northward as Shark Bay.
- P. pyrum* (Lamarck, 1822). South coast as far westward as Bremer Bay.
- P. semigranosum* (Lamarck, 1822). South coast and northward along the west coast to Fremantle.
- P. sinuosum* (Verco, 1904). South coast and northward along the west coast to Bunbury.
- P. whitworthi* Abbott, 1968. West coast from Rottnest to Geraldton.

#### TONNIDAE

- Tonna allium* (Dillwyn, 1817). North coast eastward from North-West Cape.
- T. canaliculata* (Linnaeus, 1758). North coast and southward along the west coast to Shark Bay.
- T. chinensis* (Dillwyn, 1817). North coast and southward along the west coast to Cape Leeuwin.
- T. perdix* (Linnaeus, 1758). North coast and southward along the west coast to the Houtman Abrolhos.
- T. tessellata* (Linnaeus, 1758). North coast eastward from the Dampier Archipelago.
- T. variegata* (Lamarck, 1822). South coast and northward along the west coast to North-West Cape.

## MURICIDAE

- Bedevea hanleyi* (Angas, 1867). South coast and northward along the west coast to Shark Bay.
- B. paivae* (Crosse, 1864). South coast and northward along the west coast to Pt. Quobba.
- Chicoreus banksii* (Sowerby, 1840). North coast eastward from the Dampier Archipelago.
- C. cervicornis* (Lamarck, 1822). North coast and southward along the west coast to Rottnest Island.
- C. cornucervi* (Röding, 1798). North coast and southward along the west coast to the Houtman Abrolhos.
- C. laciniatus* (Sowerby, 1841). North coast eastward from Onslow.
- C. ramosus* (Linnaeus, 1758). Kimberley region of the north coast.
- C. rubiginosus* (Reeve, 1845). North coast and southward along the west coast to the Houtman Abrolhos.
- C. torrefactus* (Sowerby, 1841). North coast eastward from North-West Cape.
- Dermomurex antonius* Vokes, 1974. Dampier Archipelago area of the north coast.
- Haustellum macgillivrayi* (Dohrn, 1862). North coast eastward from North-West Cape and southwards on the west coast to Jurien Bay.
- H. multiplicatum* (Sowerby, 1895). North coast and southward along the west coast to Rottnest Island.
- H. wilsoni* Old and d'Attilio, 1971. West coast in the Jurien Bay area.
- Hexaplex stainforthi* (Reeve, 1842). North coast and southward along the west coast to the Houtman Abrolhos.
- Homalocantha secunda* (Lamarck, 1822). North coast eastward from North-West Cape.
- Murex acanthostephes* Watson, 1883. North coast eastward from Broome.
- M. brunneus* (Link, 1807). Kimberley region of the north coast.
- M. coppingeri* E. A. Smith, 1884. North coast eastward from North-West Cape.
- M. tiremus* (Perry, 1811). North coast and southward along the west coast to Shark Bay.
- Muricopsis planilirata* (Reeve, 1845). South coast and northward along the west coast to Perth.
- Pterotyphis angasi* (Crosse, 1863). South coast and northward along the west coast to Fremantle.
- Pteryonotus acanthopterus* (Lamarck, 1816). North coast and southward along the west coast to Cape Leeuwin.
- P. bednalli* (Brazier, 1877). Kimberley region of the north coast.
- P. lowei* (Pilsbry, 1931). North coast eastward from the Dampier Archipelago.
- P. westralis* Ponder and Wilson, 1973. West coast from Bunbury to North-West Cape.
- Typhis yatesi* Crosse and Fischer, 1865. South coast and northward along the west coast to Rottnest Island.

## THAIDIDAE

- Cronia avellana* (Reeve, 1846). North coast, west coast, and eastwards along the south coast to Albany.
- Dicathais aegrotia* (Reeve, 1846). South coast and northward along the west coast to the Houtman Abrolhos.

- Drupa morum* Röding, 1798. North coast eastwards from North-West Cape.
- D. ricinus* (Linnaeus, 1758). North coast and southward along the west coast to the Houtman Abrolhos.
- Drupella cornus* (Röding, 1798). North coast and southwards along the west coast to the Houtman Abrolhos.
- Drupina grossularia* Röding, 1798. North coast eastwards from Barrow Island.
- D. lobata* (Blainville, 1832). North coast eastwards from North-West Cape.
- Lepsiella flindersi* Adams and Angas, 1863. South coast and northwards along the west coast to Cockburn Sound.
- L. vinosa* (Lamarck, 1822). South coast and northwards along the west coast to Cockburn Sound.
- Manicella manicella* (Linnaeus, 1758). North coast and southwards along the west coast to Shark Bay.
- M. tuberosa* (Röding, 1798). Kimberley region of the north coast.
- Morula granulata* (Duclos, 1832). North coast and southward along the west coast to Pt. Quobba.
- M. margariticola* (Broderip, 1832). North coast eastwards from North-West Cape.
- M. spinosa* (H. and A. Adams, 1853). North coast and southwards along the west coast to the Houtman Abrolhos.
- M. uva* (Röding, 1798). North coast and southward along the west coast to the Houtman Abrolhos.
- Nassa francolina* (Bruguière, 1789). North coast and southwards along the west coast to Rottnest Island.
- Thais aculeata* Deshayes, 1844. North coast eastwards from North-West Cape.
- T. alvina* (Röding, 1798). North coast eastward from the Dampier Archipelago.
- T. bufo* (Lamarck, 1822). North coast eastwards from North-West Cape.
- T. echinata* (Blainville, 1832). North coast and southward along the west coast to Shark Bay.
- T. kieneri* (Deshayes, 1844). North coast eastwards from North-West Cape.
- Vexilla vexillum* (Gmelin, 1791). North coast eastwards from North-West Cape.

## COLUMBELLIDAE

- Dentimitrella austrina* (Gaskoin, 1852). South coast and northward along the west coast to Kalbarri.
- D. lincolnsensis* (Reeve, 1859). South coast and northward along the west coast to Rottnest Island.
- D. pulla* (Gaskoin, 1852). South coast as far westward as Pt. d'Entrecasteaux.
- D. semiconvexa* (Lamarck, 1822). South coast and northward along the west coast to Cape Naturaliste.
- Lavesopus essingtonensis* (Reeve, 1859). North coast eastward from Pt. Hedland.
- Macrozafra angasi* Brazier, 1871. South coast as far westward as Hopetoun.
- M. speciosa* (Angas, 1877). South coast and northward on the west coast to Fremantle.

- Mitrella albina* (Kiener, 1841). North coast and west coast as far southward as Perth.
- M. ligula* (Duclos, 1840). North coast and west coast as far southward as Shark Bay.
- M. marquesa* (Gaskoin, 1852). North coast eastward from North-West Cape.
- M. miser* (Sowerby, 1844). North coast and southward along the west coast to Pt. Quobba.
- M. puella* (Sowerby, 1844). North coast eastward from North-West Cape.
- Pseudamyoia dermestoides* (Lamarck, 1822). South coast and northward along the west coast to Cape Naturaliste.
- Pyrene bidentata* (Dall, 1889). South coast and northward along the west coast to North-West Cape.
- P. flava* (Bruguière, 1789). North coast eastwards from North-West Cape.
- P. punctata* (Bruguière, 1789). North coast and southward along the west coast to the Houtman Abrolhos.
- P. testudinaria* (Link, 1807). North coast eastward from the North-West Cape.
- P. tuturina* (Lamarck, 1822). North coast and southward along the west coast to the Houtman Abrolhos.
- P. varians* (Sowerby, 1832). North coast and southward along the west coast to Rottnest Island.
- Retizafra calva* (Verco, 1910). South coast and northward along the west coast to Rottnest Island.
- Zafra mitriformis* A. Adams, 1860. Swan estuary only.
- Z. troglodytes* (Souverbie, 1866). Dampier Archipelago area of the north coast.

## FASCIOLARIIDAE

- Fusinus australis* (Quoy and Gaimard, 1833). South coast and northwards along the west coast to the Houtman Abrolhos.
- F. tessellatus* (Sowerby, 1880). South coast and northwards along the west coast to Geraldton.
- Fusus colus* (Linnaeus, 1758). North coast and southwards along the west coast to Shark Bay.
- Latirus belcheri* (Reeve, 1847). North coast eastwards from North-West Cape.
- L. paetelianus* Kobelt, 1876. North coast eastwards from Onslow.
- L. recurvirostris* Schubert and Wagner, 1829. North coast eastwards from North-West Cape.
- L. walkeri* Melville, 1895. North coast eastwards from North-West Cape.
- Latirolagena smaragdula* (Linnaeus, 1758). North coast eastwards from Rowley Shoals.
- Microcolus dunkeri* (Jonas, 1844). South coast and northwards along the west coast to the Houtman Abrolhos.
- Peristernia incarnata* (Deshayes, 1830). North coast and southwards along the west coast to Geraldton.
- Pleuroploca australasia* (Perry, 1811). South coast.
- P. filamentosa* (Röding, 1798). Kimberley region of the north coast.
- P. trapezium* (Linnaeus, 1758). North coast eastwards from the Montebello Islands.

## NASSARIIDAE

- Nassarius albescent* (Dunker, 1846). North coast eastwards from North-West Cape.
- N. albina* (Thiele, 1930). North coast and southward along the west coast to the Houtman Abrolhos.
- N. bicallosus* (E. A. Smith, 1876). North coast and southwards along the west coast to Shark Bay.
- N. burcharidi* (Dunker in Philippi, 1849). South coast and northwards along the west coast to Perth.
- N. concinnus* (Powys, 1835). North coast eastwards from North-West Cape.
- N. coronatus* (Bruguière, 1789). North coast eastwards from North-West Cape.
- N. crematus* (Hinds, 1844). Kimberley region of the north coast.
- N. dorsatus* (Röding, 1798). North coast eastwards from North-West Cape.
- N. gaudiosus* (Hinds, 1844). North coast and southwards along the west coast to Perth.
- N. glans* (Linnaeus, 1758). North coast and southwards along the west coast to Geraldton.
- N. livescens* (Philippi, 1849). North coast and southwards along the west coast to Shark Bay.
- N. nigellus* (Reeve, 1864). South coast and northwards along the west coast to Cockburn Sound.
- N. particeps* (Hedley, 1915). South coast, west coast, and north coast east to Dampier.
- N. pauperatus* (Lamarck, 1822). South coast and northwards along the west coast to Geraldton.
- N. pyrrhus* (Menke, 1843). South coast and northwards along the west coast to Fremantle.
- N. rufula* (Kiener, 1834). South coast westwards from Albany and northwards along the west coast to Geraldton.
- N. stigmarius* (A. Adams, 1852). North coast eastwards from North-West Cape.
- N. variegatus* (A. Adams, 1852). North coast eastwards from Onslow.

## OLIVIDAE

- Alocospira monilifera* (Reeve, 1864). South coast and northward along the west coast to Cape Leeuwin.
- Amalda elongata* (Gray, 1847). North coast and southward along the west coast to Shark Bay.
- Ancillista cingulata* (Sowerby, 1830). North coast and southward along the west coast to Shark Bay.
- Oliva australis* Duclos, 1835. South coast, west coast, and eastward along the north coast to Broome.
- O. caerulea* (Röding, 1798). North coast and southward along the west coast to the Houtman Abrolhos.
- O. caldania* Duclos, 1835. North coast eastward from North-West Cape.
- O. lignara* Marratt, 1868. North coast and southward along the west coast to Cockburn Sound.

*O. oliva* (Linnaeus, 1758). North coast eastward from North-West Cape.

*O. sidelia* Duclos, 1835. North coast eastward from Onslow.

### MITRIDAE

*Cancilla circula* (Kiener, 1838). North coast eastward from Onslow.  
*Imbricaria* cf. *I. conovula* Quoy & Gaimard, 1833. North coast eastward from Dampier.

*Mitra ambigua* Swainson, 1829. North coast eastward from North-West Cape.

*M. atjehensis* Oostingh, 1939. North coast and southward along the west coast to Dongara.

*M. aurantia* (Gmelin, 1791). North coast eastward from Barrow Island.

*M. carbonaria* Swainson, 1822. South coast and northward along the west coast to the Houtman Abrolhos.

*M. chalybeia* Reeve, 1844. West coast endemic from Pt. d'Entrecasteaux to Port Gregory.

*M. coffea* Schubert and Wagner, 1829. North coast eastward from the Dampier Archipelago.

*M. cucumerina* Lamarck, 1811. North coast eastward from North-West Cape.

*M. ferruginea* Lamarck, 1811. North coast eastward from North-West Cape.

*M. fraga* Quoy and Gaimard, 1833. North coast and southward along the west coast to Geraldton.

*M. gilbertsoni* (J. Cate, 1968). Endemic from the Houtman Abrolhos to Port Hedland.

*M. glabra* Swainson, 1821. South coast and northward along the west coast to Perth.

*M. litterata* Lamarck, 1811. North coast eastward from North-west Cape.

*M. luctuosa* A. Adams, 1853. North coast and southward along the west coast to Perth.

*M. punctulata* Lamarck, 1811. North coast eastward from North-west Cape.

*M. rosacea* Reeve, 1845. North coast and southward along the west coast to Rottnest Island.

*M. rubiginosa* Reeve, 1844. North coast eastward from North-West Cape.

*M. scutulata* (Gmelin, 1791). North coast and southward along the west coast to Cape Naturaliste.

*M. sowerbyi kingae* Cernohorsky, 1972. North coast and southward along the west coast to the Houtman Abrolhos.

*M. stictica* (Link, 1807). Kimberley region of the north coast.

*M. ticaonica* Reeve, 1844. North coast and southward along the west coast to Geraldton.

*M. variabilis* Reeve, 1844. Eastward along the north coast from North-West Cape.

*Scabricola backae* Cernohorsky, 1973. Entire west coast, eastward along the north coast to Onslow.

*S. desetangii* (Kiener, 1838). North coast eastward from the Dampier Archipelago.

*S. flammigera* (Reeve, 1844). North coast eastward from Onslow.

*S. incarnata* (Reeve, 1845). North coast eastward from Onslow.

*S. interlirata* (Reeve, 1844). North coast eastward from North-West Cape.

*S. lacunosa* (Reeve, 1844). North coast eastward from the North-West Cape.

*S. ocellata ekeræ* Cernohorsky, 1973. North coast eastward from North-West Cape.

*S. praestantissima* Röding, 1798. North coast eastward from North-West Cape.

*Vexillum amanda* (Reeve, 1845). North coast and southward along the west coast to Rottnest Island.

*V. angustissimum* (E. A. Smith, 1903). North coast eastward from the Dampier Archipelago.

*V. australe* Swainson, 1820. South coast and northward along the west coast to Shark Bay.

*V. cadaverosum* (Reeve, 1844). North coast and southward along the west coast to Shark Bay.

*V. crocatum* (Lamarck, 1811). North coast eastward from the Dampier Archipelago.

*V. hansenæ* Cernohorsky, 1973. Endemic from Cape Leeuwin to Fremantle.

*V. lincolniensis* Angas, 1878. South coast as far west as Hopetoun.

*V. marrowi* Cernohorsky, 1973. Endemic from Hopetoun to Kalbarri.

*V. microzonias* (Lamarck, 1811). North coast eastward from Barrow Island.

*V. modestum* (Reeve, 1845). North coast eastward from Onslow.

*V. obeliscus* (Reeve, 1844). North coast and southward along the west coast to Rottnest Island.

*V. pacificum* (Reeve, 1845). North coast and southward along the west coast to Shark Bay.

*V. percnodictya* (Melvill, 1888). North coast eastward from North-West Cape.

*V. plicarium* (Linnaeus, 1758). North coast eastward from North-West Cape.

*V. radius* (Reeve, 1845). North coast eastward from North-West Cape.

*V. rugosum* (Gmelin, 1791). North coast eastward from North-West Cape.

*V. suluense* (Adams and Reeve, 1850). North coast eastward from North-West Cape.

*V. unifasciatum* (Wood, 1828). North coast and southward along the west coast to Shark Bay.

*V. vulpecula* (Linnaeus, 1758). North coast eastward from North-West Cape.

*V. zebuense* (Reeve, 1844). North coast and southward along the west coast to the Houtman Abrolhos.

### VOLUTIDAE

*Amoria damoni* Gray, 1864. North coast and southward along the west coast to Rottnest Island.

*A. dampiera* Weaver, 1960. North coast eastwards from the Monte Bello Islands.

*A. ellioti* (Sowerby, 1864). North coast eastwards from Port Hedland.

*A. exoptanda* (Reeve, 1849). South coast.

*A. grayi* Ludbrook, 1953. North coast from the Kimberleys westward and southward along the west coast to Geographe Bay.

- A. irvinae* Smith, 1909. South coast westward from Albany and northwards along the west coast to the Houtman Abrolhos.
- A. jamrachi* Gray, 1864. North coast eastward from North-West Cape to the Kimberleys, and also occurs in Indonesia.
- A. macandrewi* (Sowerby, 1887). Region of Barrow Island.
- A. nivosa* (Lamarck, 1804). North coast and southward along the west Coast to Cockburn Sound.
- A. praetexta* (Reeve, 1849). North coast between North-West Cape and Broome.
- A. turneri* (Gray in Griffith and Pidgeon, 1834). Kimberley region of the north coast.
- Cottonia nodiplicata* (Cox, 1916). South coast and northward along the west coast to Jurien Bay.
- Ericusa fulgetrum* (Sowerby, 1825). South coast to Albany.
- E. papillosa* (Swainson, 1822). South coast and northward along the west coast to Bunbury.
- Livonia roadnightae* (McCoy, 1881). South coast and northward along the west coast to Rottnest Island.
- Lyria mitraeformis* (Lamarck, 1811). South coast westward to Hopetoun.
- Melo amphora* (Solander, 1786). North coast and southward along the west coast to Shark Bay.
- M. miltonis* (Gray in Griffith and Pidgeon, 1834). South coast and northward along the west coast to the Houtman Abrolhos.
- Notopeplum kreuslerae* (Angas, 1865). South coast.
- Volutoconus bednalli* (Brazier, 1879). Kimberley region of the north coast.
- V. coniformis* (Cox, 1871). North coast between the Dampier Archipelago and Broome.
- V. hargreavesi* (Angas, 1872). Between Shark Bay and the Dampier Archipelago.
- CONIDAE**
- Conus achatinus* Gmelin, 1791. North coast and southward along the west coast to Jurien Bay.
- C. anemone* Lamarck, 1810. South coast and northward along the west coast to the Abrolhos Islands.
- C. arenatus* Hwass, 1792. North coast eastward from North-West Cape.
- C. capitaneus* Linnaeus, 1758. North coast eastward from North-West Cape.
- C. catus* Hwass, 1792. Kimberley region of the north coast.
- C. ceylanensis* Bruguière, 1792. North coast and southward along the west coast to Shark Bay.
- C. chaldeus* (Röding, 1798). North coast and southward along the west coast to the Houtman Abrolhos.
- C. cholmondelyi* Melville, 1900. Kimberley region of the north coast.
- C. clarus* Smith, 1881. North coast eastward from North-West Cape.
- C. coceus* Reeve, 1844. South coast and northward on the west coast to Rottnest Island.
- C. coronatus* Gmelin, 1791. Eastward along the north coast from North-West Cape.
- C. dorreensis* Péron, 1807. South coast westward from Albany and northward on the west coast to the North-West Cape.
- C. ebraeus* Linnaeus, 1758. North coast and southward along the west coast to the Houtman Abrolhos.
- C. eburneus* Hwass, 1792. North coast eastward from Rowley Shoals.
- C. frigidus* Reeve, 1848. North coast eastwards from Barrow Island.
- C. generalis* Linnaeus, 1767. North coast eastward from North-West Cape.
- C. geographus* Linnaeus, 1758. North coast and southward along the west coast to the Houtman Abrolhos.
- C. gilvus* Reeve, 1849. North coast eastward from the Dampier Archipelago.
- C. glans* Hwass, 1792. North coast eastward from N.W. Cape.
- C. infrenatus* Reeve, 1848. West coast from Cape Naturaliste to the Houtman Abrolhos.
- C. kenyonae* Brazier, 1896. North coast and southward along the west coast to the Houtman Abrolhos.
- C. klemae* (Cotton, 1953). South coast and northwards along the west coast to the Houtman Abrolhos.
- C. lemniscatus* Reeve, 1849. North coast eastward from Adele Island.
- C. lividus* Hwass, 1792. North coast and southward along the west coast to Rottnest Island.
- C. macarae* Bernardi, 1857. North coast and southward along the west coast to Shark Bay.
- C. marmoreus* Linnaeus, 1758. North coast eastward from Rowley Shoals.
- C. miliaris* Bruguière, 1792. North coast eastward from North-West Cape.
- C. monachus* Linnaeus, 1758. North coast and southward along the west coast to Jurien Bay.
- C. mustelinus* Bruguière, 1792. Kimberley region of the north coast.
- C. nanus* Sowerby, 1833. North coast and southward along the west coast to Shark Bay.
- C. nodulosus* Sowerby, 1864. West coast from Fremantle to Shark Bay.
- C. nussatella* Linnaeus, 1758. Kimberley region of the north coast.
- C. obscurus* Sowerby, 1833. North coast eastwards from N.W. Cape.
- C. planorbis* Born, 1778. North coast eastwards from North-West Cape.
- C. pulicarius* Hwass, 1792. North coast eastward from North-West Cape.
- C. rattus* Hwass, 1792. North coast eastward from North-West Cape.
- C. rutilus* Menke, 1843. South coast and along the west coast to Rottnest Island.
- C. segravei* Gatliff, 1891. South coast westward to Cape Leeuwin.
- C. spectrum* Linnaeus, 1758. North coast and southward along the west coast to Shark Bay.
- C. sponsalis* Hwass, 1792. North coast eastward from Onslow.
- C. striatus* Linnaeus, 1758. North coast eastward from North-West Cape.
- C. suturalis* Reeve, 1844. North coast and southwards along the west coast to Shark Bay.
- C. terebra* Born, 1780. North coast and southward along the west coast to Carnarvon.
- C. tessellata* Born, 1778. Kimberley region of the north coast.

- C. textile* Linnaeus, 1758. North coast eastward from North-West Cape.  
*C. trigonis* Reeve, 1848. North coast eastward from North-West Cape.  
*C. vexillum* Gmelin, 1791. North coast eastward from North-West Cape.  
*C. victoriae* Reeve, 1843. North coast eastward from North-West Cape.

## TEREBRIDAE

- Duplicaria addita* Deshayes, 1859. North coast and southward along the west coast to Cape Naturaliste.  
*D. bernardi* (Deshayes, 1857). North eastward from Broome.  
*D. crakei* Burch, 1965. Broome area on north coast.  
*D. duplicata* (Linnaeus, 1758). North coast and southwards along the west coast to Shark Bay.  
*D. evoluta* (Deshayes, 1859). North coast and southward along the west coast to Shark Bay.  
*Hastula nitida* (Hinds, 1844). North coast and southwards along the west coast to Rottnest Island.  
*H. rufopunctata* (E. A. Smith, 1877). North coast and southward along the west coast to Shark Bay.  
*H. strigilata* (Linnaeus, 1758). North coast eastward from Pt. Samson.  
*Terebra affinis* Gray, 1834. North coast and southward along the west coast to the Houtman Abrolhos.  
*T. areolata* (Link, 1807). North coast eastward from North-West Cape.  
*T. commaculata* (Gmelin, 1791). North coast and southward along the west coast to Shark Bay.  
*T. crenulata* (Linnaeus, 1758). North coast eastward from North-West Cape.  
*T. dimidiata* (Linnaeus, 1758). North coast eastward from North-West Cape.  
*T. felina* (Dillwyn, 1817). North coast eastwards from North-West Cape.  
*T. nebulosa* Sowerby, 1825. North coast and southward along the west coast to Shark Bay.  
*T. triseriata* Gray, 1834. North coast eastwards from Onslow.

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